

Application. No. 10/622,981  
Amendment. dated 12/4/06  
Reply to Office action of 9/5/06

### CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

#### Listing of Claims:

Claim 1 (currently amended). A microprocessor circuit, comprising:

at least one control unit;

at least one memory for free programming with at least one program having functions, said memory connected to said control unit;

a register bank having registers, said register bank connected to said control unit:

an auxiliary register comprising a number of further registers corresponding to a number of said registers of said register bank, each one of said further registers storing a single bit  
~~number of bits~~, each of the bits being associated with one of said registers of said register bank and indicating whether valid data was written in a respective one of said registers ~~contains a value different from a logical "0"~~, said auxiliary

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register connected to at least one of said control unit or said register bank, and a stack for buffer-storing data of said auxiliary register and, as a function of the associated bit, of said registers of said register bank, said stack connected to at least one of said control unit, said register bank, or said auxiliary register.

Claim 2 (currently amended). The microprocessor circuit according to claim 1, ~~wherein said auxiliary register has a number of further registers corresponding to a number of said registers of said register bank~~ including a second stack for storing at least some data in said register bank, said second stack connected to said control unit and inaccessible by the program.

Claim 3 (currently amended). The microprocessor circuit according to ~~claim 2~~ claim 1, wherein: ~~each of said further registers store single bit~~

said register bank has first and second areas with first and second registers;

said first registers storing data of a called function; said second registers storing data of both a called function and data of a calling function; and at least said first registers

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are associated with a bit stored in a further register of said auxiliary register.

Claim 4 (currently amended). A The microprocessor circuit according to claim 1, wherein said auxiliary register has only, comprising:

at least one control unit;

at least one memory for free programming with at least one program having functions, said memory connected to said control unit;

a register bank having registers, said register bank connected to said control unit;

an auxiliary register comprising one further register for storing a bit sequence corresponding to a number of said registers of said register bank, each one of said further registers storing a single bit, each of the bits being associated with one of said registers of said register bank and indicating whether a valid data was written in respective one of said registers, said auxiliary register connected to at least one of said control unit or said register bank, and a stack for buffer-storing data of said auxiliary register and,

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as a function of the associated bit, of said registers of said register bank, said stack connected to at least one of said control unit, said register bank, or said auxiliary register.

Claim 5 (original). The microprocessor circuit according to claim 4, wherein said auxiliary register is at least one of said registers of said register bank.

Claim 6 (currently amended). The microprocessor circuit according to ~~claim 1~~ claim 4, further comprising a second stack for storing at least some data in said register bank, said second stack being accessible only to an operating system of said control unit.

Claim 7 (currently amended). The microprocessor circuit according to ~~claim 1~~ claim 4, further comprising a second stack for storing at least some data in said register bank, said second stack inaccessible by a programmer.

Claim 8 (currently amended). The microprocessor circuit according to ~~claim 1~~ claim 4, further comprising a second stack for storing at least some data in said register bank, said second stack connected to said control unit and inaccessible by the program.

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Claim 9 (currently amended). The microprocessor circuit  
according to ~~claim 1~~ claim 4, wherein:

said register bank has first and second areas with first and  
second registers;

said first registers storing data of a called function; said  
second registers storing data of both a called function and  
data of a calling function; and at least said first registers  
are associated with a bit of said bit sequence stored in said  
auxiliary register.

Claim 10 (currently amended). The microprocessor circuit  
according to ~~claim 1~~ claim 4, wherein:

said register bank has first and second areas with first and  
second registers;

said first registers storing data of a called function;

said second registers storing data of both a called function  
and data of a calling function; and

at least said first registers are associated with a bit of  
said bit sequence stored in said auxiliary register.

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Claim 11 (currently amended). The microprocessor circuit according to ~~claim 9~~ claim 4, wherein said first area of said register bank is divided into a plurality of sub-areas respectively available to one of the functions of the program.

Claim 12 (currently amended). A method for operating a microprocessor circuit, which comprises the steps of:

providing a circuit with:

at least one control unit;

at least one memory for free programming with at least one program having functions;

a stack for buffer-storing data;

a register bank having registers; and

an auxiliary register:

setting all of the bits of the auxiliary register to a ~~logical~~ "0" first value when the circuit is initialized;

storing bits in the auxiliary register, each of the bits being

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associated with one of the registers and indicating whether a respective one of the registers contains a value valid datum different from ~~a logical "0"~~ the first value;

setting a bit of the auxiliary register associated with a respective one of the registers to a second value different from the ~~logical "0"~~ first value when a datum is written to the associated register of the register bank; ~~and~~

storing data being stored in the auxiliary-register and the registers of the register bank in the stack, selecting registers of the register bank being stored as a function of their associated bits, or storing data being stored in the stack in the auxiliary register and in the registers of the register bank, and selecting the registers of the register bank storing data as a function of the associated bits;

the method further comprises, when a datum from one of the registers of the register bank whose associated bit of the auxiliary register has the first value is read, returning a predefined datum.

Claim 13 (currently amended). The method according to claim 12, ~~which further comprises permitting a read of a datum from one of the registers of the register bank only if the~~

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~~associated bit of the auxiliary register has the value~~  
~~different from the logical "0" wherein the first value~~  
corresponds to a logical "0".

Claim 14 (currently amended). The method according to claim  
12, ~~which further comprises, when a datum from one of the~~  
~~registers of the register bank whose associated bit of the~~  
~~auxiliary register has the logical "0" value is read,~~  
~~returning the datum "0" wherein the predefined datum~~  
corresponds to the datum "0".

Claim 15 (currently amended). The method according to claim  
13, which further comprises, when a datum from one of the  
registers of the register bank whose associated bit of the  
auxiliary register has the ~~logical "0"~~ first value ~~is~~ read,  
returning the datum "0".

Claim 16 (currently amended). The method according to claim  
12, which further comprises:

providing the circuit with a second stack for storing at least  
some data in the register bank and making the second stack  
inaccessible by a programmer; and



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if the circuit changes from a first function to a second function, successively storing the data associated with the first function in the registers of the register bank and the ~~bit sequence of~~ bits stored in the auxiliary register in one of the stack and the second stack.

Claim 17 (currently amended). The method according to claim 16, which further comprises setting the bits of the auxiliary register to the ~~logical "0"~~ first value after storing the data and the ~~bit sequence of~~ bits stored in the auxiliary register in one of the stacks.

Claim 18 (currently amended). The method according to claim 12, wherein a register of the register bank is only stored on the stack if the associated bit of the auxiliary register has a value different from the ~~logical "0"~~ first value.

Claim 19 (previously presented). The method according to claim 18, wherein the auxiliary register is stored as the last value on the stack.

Claims 20 and 21 (canceled).